

REMARKS

Claims 1-10 are presently pending in the application.

Claim 1 has been amended to recite that “n” and “m” may be integers of 2 to 6. This amendment is supported in the specification at least in paragraph [0032] and in Examples 1 and 2. No new matter has been added by this amendment, and entry is respectfully solicited.

In the Office Action, the Examiner has rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by JP 11-106380 (“JP ‘380”) and claims 3 and 4 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over JP ‘380. Finally, the Examiner has rejected claims 1-10 under 35 U.S.C. § 102(a)/(f) as being anticipated by U.S. Patent No. 6,660,344 or WO 02/28985 of Lub (“Lub references”). Applicants respectfully traverse these rejections and the arguments in support thereof as follows, and respectfully request reconsideration and withdrawal of the rejections.

Rejections Under § 102(b) and § 103(a) Based on JP ‘380

Regarding claim 1, the Examiner argues that JP ‘380 discloses that dioxetane derivatives having excellent thermal resistance, mechanical and adhesive properties are useful for coating applications. The formula (1) in JP ‘380 in which R = H allegedly anticipates the claimed compound with the present formula (4).

Regarding claims 3 and 4, the Examiner argues that JP ‘380 teaches the reference compound having dioxetane rings which can be processed by cationic polymerization (section [00001]). The Examiner acknowledges that the claims recite that at least 10% by mass of the oxetane compound is included in the polymerizable liquid crystal composition, and that the

percentage of dioxetane is not disclosed by JP '380. However, the Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the initial percentage of the dioxetane monomer according to its application (thermal resistance, adhesion, photoresist and thermosetting resin) to obtain the present invention. Applicants respectfully traverse these rejections as follows.

The present invention relates to specific liquid crystalline oxetane compounds represented by formula (1) which have terminal oxetanyl groups at both ends, and polymerizable liquid crystalline compositions containing such oxetane compounds. In order to provide a wide temperature range at which liquid crystallinity is exhibited, the oxetane compounds contain alkyl spacer groups at each end, each preferably containing 2 to 6 carbon atoms (see paragraph [0032] and claim 1). Applicants have discovered that such compositions exhibit excellent alignability and alignment retention properties after being aligned and fixed in a liquid crystal orientation, as well as good thermal and mechanical strength. These compositions are thus excellent materials for optical films, such as retardation films, and are suitable for use in liquid crystal displays.

In contrast, JP '380 does not teach or suggest the claimed oxetane compound having spacer groups on each end containing two to six carbon atoms. Accordingly, JP '380 does not anticipate claim 1. Further, regarding claims 3 and 4, JP '380 does not teach or suggest a polymerizable liquid crystalline composition, but merely teaches a method of making a biphenyl compound containing oxetane rings, useful for coatings and adhesives. Therefore, despite the Examiner's assertion to the contrary, it would not have been simply a matter of adjusting the initial percentage of dioxetane monomer in order to arrive at the present invention, since JP '380 is completely silent as to liquid crystal compositions. Finally, since JP '380 does not teach or suggest liquid crystalline compounds and compositions, the advantages of the present invention,

including mechanical and thermal strength and the ability to be formed into optical films with excellent alignment retention properties after being aligned and fixed, would not be expected. Accordingly, reconsideration and withdrawal of the § 102 and § 103 rejections based on JP '380 are respectfully requested.

Rejections Under § 102(a)/102(f) Based on Lub References

Regarding claims 1-10, the Examiner argues that the Lub references disclose the polymerizable liquid-crystalline dioxetane represented by the formula (I), which allegedly anticipates the claimed compound with formula (3). The Lub references allegedly also teach that the polymerizable liquid-crystalline dioxetane was dissolved in a suitable solvent, mixed with a suitable cationic photoinitiator, and spincoated on a substrate to form a film which was polymerized using a suitable UV source. The Examiner further argues that the Lub references teach that the reference compounds and compositions are useful in various applications, such as liquid crystal devices, sensors, and optical precision instruments. The Examiner thus concludes that the Lub references anticipate the present invention. Applicants respectfully traverse this rejection as follows.

U.S. Patent No. 6,660,344 of Lub was filed in the United States on October 3, 2001, and thus would be entitled to this prior art date under § 102(e). However, the present application claims priority to JP 2001-286652, filed September 20, 2001. A verified translation of JP 2001-286652 is filed herewith, in which it can be seen that all of the pending claims are supported in the priority document. Accordingly, the priority date of the present application is prior to the § 102(e) prior art date of the '344 patent of Lub. Furthermore, WO 02/28985 of Lub was published on April 11, 2002, which is also subsequent to the priority date of the present

Application No. 10/801,459
Reply to Office Action of September 16, 2004

application. Accordingly, the Lub references are not prior art against the present application, and reconsideration and withdrawal of the § 102 (a)/(f) rejections based on the Lub references are respectfully requested.

In view of the preceding Amendments and Remarks, it is respectfully requested that the pending claims are patentably distinct from the prior art of record and in condition for allowance. A Notice of Allowance is respectfully requested.

Respectfully submitted,

Takuya Matsumoto et al.

January 13, 2005
(Date)

By:

Sandra M. Katz
SANDRA M. KATZ

Registration No. 51,864

AKIN GUMP STRAUSS HAUER & FELD LLP

One Commerce Square

2005 Market Street, Suite 2200

Philadelphia, PA 19103-7013

Telephone: 215-965-1200

Direct Dial: 215-965-1344

Facsimile: 215-965-1210

E-Mail: skatz@akingump.com

WWS/SMK:smk

Enclosures: Petition for Extension of Time (one month)
Verified Translation of JP 2001-286652